CLAIMS

1. A method of producing a polarizing film, comprising the steps of:

allowing a hydrophilic polymer film to swell wherein the polymer film is conveyed by means of a guide roll so as to be impregnated in an aqueous solvent in a swelling bath;

dyeing the polymer film using a dichroic substance; and

stretching the polymer film,

wherein in the swelling step, at least a first guide roll is arranged in the swelling bath, and

when the polymer film is impregnated in and allowed to travel in the aqueous solvent, the polymer film is brought into contact with the first guide roll within a time up to when swelling reaches a saturation state.

2. The method according to claim 1,

wherein a second guide roll further is arranged in the swelling bath, and the polymer film is brought into contact with the first guide roll within a time up to when swelling reaches a saturation state and further is brought into contact with the second guide roll after the swelling reaches the saturation state.

3. The method according to claim 1,

wherein a required length of time (a) between the time when the polymer film is brought into contact with the aqueous solvent and the time when the polymer film is bought into contact with the first guide roll is 0.6 to 12 seconds.

4. The method according to claim 2,

wherein a required length of time (b) between the time when the polymer film is brought into contact with the first guide roll and the time when the polymer film is brought into contact with the second guide roll is 13 to 120 seconds.

5. The method according to claim 4,

wherein a total length of time of the required length of time (a) and the required length of time (b) is in a range of 25 to 180 seconds.

6. A method of producing a polarizing film, comprising the steps of:

allowing a hydrophilic polymer film to swell in an aqueous solvent, in which the polymer film is conveyed by means of a guide roll so as to be impregnated in a swelling bath of the aqueous solvent;

dyeing the polymer film using a dichroic substance; and

stretching the polymer film,

wherein in the swelling step, at least a first guide roll is arranged in the swelling bath, and

when the polymer film is impregnated in and allowed to travel in the aqueous solvent, the polymer film is brought into contact with the first guide roll after swelling reaches a saturation state.

7. The method according to claim 6,

wherein a required length of time (c) between the time when the polymer film is brought into contact with the aqueous solvent and the time when the polymer film is brought into contact with the first guide roll is 25 to 180 seconds.

8. The method according to claim 1 or 6,

wherein a length of time in which the polymer film is impregnated in the swelling bath is not less than 100 seconds.

9. The method according to claim 1 or 6,

wherein the hydrophilic polymer film before being subjected to a swelling treatment has a thickness in a range of not more than 110 μm.

10. The method according to claim 1 or 6,

wherein the hydrophilic polymer film is a polyvinyl alcohol-based film.

11. The method according to claim 1 or 6,

wherein the hydrophilic polymer film contains a plastic material in an amount of 1 to 17 wt%.

12. The method according to claim 1 or 6,

wherein the guide roll is at least one selected from a crown roll, a bent roll, and a roll with lugs.

13. The method according to claim 1 or 6,
wherein a guide roll other than the first guide roll comprises a spiral roll.

14. The method according to claim 1 or 6,
wherein a temperature of the swelling bath is in a range of 15 to 50°C.

15. The method according to claim 1 or 6,
wherein in the swelling step, the polymer film is subjected to a further stretching treatment in the swelling bath.

16. The method according to claim 1 or 6,
wherein with respect to a length of the polymer film before being subjected to the swelling step, a stretch ratio of the polymer film in the stretching treatment is in a range of 1.5 to 4.0 times.

17. The method according to claim 1 or 6,
wherein the dichroic substance is at least one of iodine and organic dyestuffs.

18. The method according to claim 17,
wherein the dichroic substance comprises at least two of the organic dyestuffs.

19. A polarizing film produced by a method as claimed in claim 1 or 6.

20. An optical film comprising a polarizing film,
wherein the polarizing film is a polarizing film as claimed in claim 19.

21. The optical film according to claim 20,
wherein the optical film further comprises a transparent protective layer, and the transparent protective layer is disposed on at least one surface of the polarizing film.

22. The optical film according to claim 20,
wherein a pressure-sensitive adhesive layer is provided in at least one outermost layer of the optical film.

23. The optical film according to claim 20,
wherein the optical film further comprises at least one of a polarization converting element and a retardation film.

24. The optical film according to claim 23,
wherein the polarization converting element is an anisotropic reflective polarization element or an anisotropic scattering polarization element.

25. A liquid crystal panel, comprising:
at least one of a polarizing film as claimed in claim 19 and an optical film as claimed in claim 20; and
a liquid crystal cell,
wherein the at least one of a polarizing film as claimed in claim 19 and an optical film as claimed in claim 20 is disposed on at least one surface of the liquid crystal cell.

26. A liquid crystal display comprising a liquid crystal panel as claimed in claim 25.

27. The liquid crystal display according to claim 26,
wherein the liquid crystal display includes a flat light source that emits polarized light.

28. An image display comprising at least one of a polarizing film as claimed in claim 19 and an optical film as claimed in claim 20.

29. The image display according to claim 28,
wherein the image display is an electroluminescence display.

30. An in-house production method for producing an image display as claimed in claim 28, comprising a step in which at least one of a polarizing film as claimed in claim 19 and an optical film as claimed in claim 20 is

attached to the display immediately after being subjected to chip-cutting.